

**Notice of Allowability**

Application No.

10/540,790

Examiner

Jeff H. Aftergut

Applicant(s)

BOURDONCLE ET AL.

Art Unit

1791

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 6-27-05.
2. ☒ The allowed claim(s) is/are 1-18, 20-25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application                                |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>1-25-07, 6-27-05</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                           | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance             |
|  | 9. <input type="checkbox"/> Other _____  |

***Election/Restriction***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-18, 20-25, drawn to a method of making a rocket motor case.

Group II, claim(s) 19, drawn to a solid propellant rocket structure.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group II was clearly known in the art, i.e. a rocket motor case with a solid propellant wherein the insulating structure of the same included a layer of polyurethane material as evidenced by Herring '841 or Herring '431. The manner in which the insulating layer is made is of no patentable import to the finished structure unless applicant can show that the finished assembly was materially different, however here it appears that the cured urethane insulating layer would have satisfied the requirements of the defined structure and that the same was not structurally different from the recited structure of the claim. As such, there appears to be a lack of a special technical feature (the use of a polyurethane as the insulating material in a rocket motor case).

3. During a telephone conversation with Charles Gagnebin on 1-8-08 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-18, 20-25.

**EXAMINER'S AMENDMENT**

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles Gagnebin on 1-8-08.

The application has been amended as follows:

In the claims:

Claim 19 has been cancelled as being directed to a non-elected invention. The election having been made with traverse.

5. The following is an examiner's statement of reasons for allowance: None of the prior art of record taught or suggested the formation of a thermally-protective coating for a thruster structure which was made by continuously casting a strip of touching turns of a mixture of polyurethane, fillers and polymerization agents to form a coating on a rotating support surface and pre-polymerizing the coating at ambient pressure so that the polyurethane is polymerized sufficiently to be stressed mechanically. The references to Herring '841 or Herring '431 suggested that it was known to form a strip of polyurethane which included polymerization agents and filler therein (via an extrusion operation and not a casting operation) and perform a winding operation with the formed strip where adjacent edges of the turns were abutted and joined together during the curing of the polyurethane wherein one employed the processing described by Marks (note that US Serial Number 378,588 is incorporated by reference in Herring and the reference matured into US Patent '619 to Marks). It should be noted that in each Herring '841 or '431, the references clearly suggested that those skilled in the art would

have been led to employ pressure during the pre-polymerizing of the urethane composition, see the various examples, for instance at column 11, lines 13-15 of Herring '841 and column 12, lines 38-40 of Herring '431. Additionally, the reference to Marks '619 and Marks '757 suggested suitable ways to wind a ribbon on a mandrel to make an insulating body for a casing with a suitable elastomeric vulcanizable ribbon which as described was cured under pressure (see the examples of both references and note in particular column 7, lines 8-13 of '619 and column 7, lines 51-56 of '757 which both defined that the compositions utilized would have been cured under low pressure of 10-50 psig (which is clearly under pressure and not at ambient pressure). Thus any combination of Marks '757 or Marks '619 with either of Herring '841 or Herring '431 would clearly suggest that those skilled in the art would have cured the composition under pressure greater than ambient pressure. It should also be noted that the references did not expressly "cast" the composition upon the mandrel. The reference to Sepkoski et al suggested that it was known to utilize a polyurethane resin which was a mixture of polyether and diphenyl methane diisocyanate together with amine polymerization agents where the resin was utilized in the formation of a composite article which was wound upon a mandrel subsequent to impregnation of a filament tow or roving with the resin. In the filament winding processing, the reference to Sepkoski suggested that the resin did not require to be cured under pressure, see column 6, lines 52-70. However, the reference did not coat the rotating mandrel by continuously casting a strip of the mixture. The reference taught that when casting was used to form the composite articles therein, fibers and resin were introduced into a mold and cured

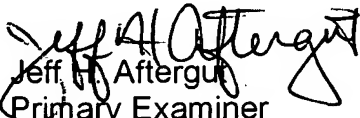
without pressure application, however there is no casting of material upon a rotating form as claimed and such is not suggested. Additionally, there is no suggestion that the process would have been useful for formation of a thermally protective coating for a thruster. Even if this composition were an obvious composition for processing as in Marks '619 or Marks '757, one would have been led to utilize pressure in the process and the strip would have been formed via extrusion or impregnation and not via a casting operation. The reference to Sayles suggested that those skilled in the art would have known to apply varied compositions of resin for the interior of the casing as compared to the exterior of the casing, however it again employs a filament winding operation (not a casting process) with a specific epoxy resin composition. None of the prior art suggested that one skilled in the art would have cast a strip onto the mandrel to coat the same and that the same would have been cured under ambient pressure to pre-polymerize the same rendering it suitable for mechanical stressing in the formation of a thermally protective coating for a thruster structure. The reference to Canterbury et al suggested that it was known to employ a polyurethane composition as a cast component for an insulation of a propellant, however the casting was performed in a mold and there was no suggestion to utilize the composition to form a preformed insulation not associated with the propellant on a rotating form.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jeff H. Aftergut  
Primary Examiner  
Art Unit 1791

1/11/08

JHA  
January 6, 2008